Amendments to the Specification:

Please replace the paragraph beginning at page 1, line 19 with the following amended paragraph:

Discrete analog sine/cosine generators may involve using logarithmic op-amps or other non-linear forms of signal integration to produce a sine or cosine wave. While these circuits are generally inexpensive, sine waves generated in this manner generally have a noticeable amount of distortion. Discrete digital sine/cosine generators may use digital to analog converters to generate a sine ~~sign~~ wave. For example, sine/cosine wave generators using multiplexers or counters (and sometimes both) are well known. Typically, these types of sine/cosine generators of are unsuitable in smaller applications where reduced circuit size and low cost is desirable or necessary.

Please replace the paragraph beginning at page 3, line 27 with the following amended paragraph:

In general, the present disclosure describes methods and systems for generating values representative of a sine wave and/or a cosine ~~cosign~~ wave. More particularly, the present disclosure describes a unique microprocessor implemented digital sine/cosine wave generator. More particularly still, the present disclosure describes a microprocessor implemented digital sine/cosine ~~cosign~~ wave generator which utilizes a coefficient generator module to provide starting parameters or coefficients for a sine/cosine wave generator module, such that sine waves and/or cosine waves of different frequencies can be generated. The present disclosure also describes a disc drive system having a digital sine/cosine wave generator operable for injecting a sine wave and/or a cosine ~~cosign~~ wave into a servo loop of a disc drive system such that a frequency response of the servo loop may be determined.

Please replace the paragraph beginning at page 8, line 13 with the following amended paragraph:

As shown in FIG. **4**, an embodiment a digital sine/cosine wave generator **400** of the present invention comprises a coefficient generation module **410** and a sine/cosine generation module **412**. In general terms, the sine/cosine generation module **412** ~~**410**~~ is functional to produce a series of discrete numbers at its output **430** that are representative of values along either a sine wave or a cosine wave. The frequency of the discrete time sine and/or cosine wave generated by the sine/cosine wave generation module **412** ~~**410**~~ is dependent on the values received at inputs **424**, **426**, and **428** to the sine/cosine wave generation module **412** ~~**410**~~. As described in greater detail below, the coefficient generation module **410** is functional to generate appropriate input values to the sine/cosine generation module **412** ~~**410**~~ such that various discrete frequency of sine and/or cosine waves may be generated by the sine/cosine wave generation module **412** ~~**410**~~.

Please replace the paragraph beginning at page 12, line 8 with the following amended paragraph:

Turning now to the operation of the coefficient generation module **410**. As shown in FIG. **7**, the coefficient generation module is in itself a sine/cosine generator. In operation the coefficient generation module **410**, as shown in FIG. **7**, employs the following well known trigonometric identities to generate sine waves and cosine waves:

$$\sin(a+b) = \sin(a)\cos(b) + \cos(a)\sin(b) \quad (4)$$

$$\cos(a+b) = \cos(a)\cos(b) - \sin(a)\sin(b) \ \sout{\cos(a)\cos(b) + \sin(a)\sin(b)} \quad (5)$$

Please replace the paragraph beginning at page 12, line 14 with the following amended paragraph:

As shown in FIG. **7**, the coefficient generation module **410** includes four multipliers **710**, **712**, **714**, and **716**, two summers **718**, **720**, and two delay units **722**, **724**. The coefficient generation module **410** receives as a first input $\sin(2\pi f_0 T)$ **726** and as a second input $\cos(2\pi f_0 T)$ **728**. Additionally, the coefficient generation module **410** is initialized with the values B(N) = $\sin(2\pi f_0 T)$ **732** and A(N) = $\cos(2\pi f_0 T)$ **730**. The input values **726** and **728** and the initialization

values **732** and **730** are preferably stored in computer readable media, such as buffer **210**, memory **224**, or registers within the microprocessor **216**. As shown in FIG. **7**, the coefficient generation module **410** outputs both $B_0 = \sin(2\pi f_0 T)$ **736** ~~734~~ and $A_0 = \cos(2\pi f_0 T)$ **734** ~~736~~. As such, the coefficient generation module **410** outputs both a series of discrete values indicative of a sine wave **734** and a series of discrete values indicative of a cosine wave **736**.

Please replace the paragraph beginning at page 12, line 24 with the following amended paragraph:

The operational flow of the coefficient generation module **410**, may alternatively be shown with respect to the flow diagram of FIG. **8**. As shown in FIG. **8**, at the start **810** of the coefficient generation module **410**, initialization operation **812** initializes: $A = \cos(2\pi f_0 T)$; $B = \sin(2\pi f_0 T)$; $C = \cos(2\pi f_0 T)$; and $D = \sin(2\pi f_0 T)$. The values **726** of A, B, C, and D are preferably stored in computer readable media, such as buffer **210**, memory **224**, or registers within the microprocessor **216**. Next, calculate operation **814** calculates B(N) ~~A(N)~~ = A*D + B*C and A(N) ~~B(N)~~ = A*C - B*D and stores the results of these operations. The output operation **816** then outputs the values of A(N) and B(N) to the outputs **734** ~~736~~ and **736** ~~734~~, respectively, as shown in FIG. **7**. Determination operation **818** then determines if the next value has been requested. That is, a determination is made as to whether the next discrete value, or data point, along the sine or cosine waves being generated by the coefficient generation module **410** have been requested. If the next data point has been requested, set operation **820** sets A = A(N) and B = B(N), the operational flow of the coefficient generation module **410** is returned the calculate operation **814** and the operational flow of the coefficient generation module **410** continues on as shown in FIG. **8**. If, on the other hand, the next data point has not been requested, the operational flow of the coefficient generation module **410** is ended **822**. Inherent in the operation of the coefficient generation module **410**, is that during each iteration of the module **410**, that is, each pass through the operations **814**, **816**, **818**, and **820** the value of N is incremented, such that $B(N) = \sin(2\pi N f_0 T)$ and or $A(N) = \cos(2\pi N f_0 T)$, where N is the number of iterations of operations **814**, **816**, **818**, and **820**.